# PHOTOCONDUCTIVE CELL ORP12

## QUICK REFERENCE DATA

Cadmium sulphide photoconductive cell for end-on incidence of illumination. Intended for general purpose applications and automatic contrast and brightness control of television receivers.

| | | |
|---|---|---|
| Maximum power dissipation ($T_{amb} = 25^{o}C$) | 200 | mW |
| Absolute maximum cell voltage | 110 | V |
| Cell resistance (at 50 lux) | 2.4 | kΩ |
| Sensitive area | 0.6 | $cm^2$ |

This data should be read in conjunction with 'OPERATING NOTES' given on page D2.

## CHARACTERISTICS

(measured under d.c. conditions, at start of life, with $T_{amb} = 25^{\circ}C$)

Cell resistance at 1000 lux and
lamp colour temperature 2700°K

| | | |
|---|---|---|
| Typical | 75 to 300 | Ω |
| Minimum ultimate dark resistance at 110V d.c. | 10 | MΩ |

(see pages C2 and C3)

| | | |
|---|---|---|
| *Nominal resistance rise time | 75 | ms |
| **Nominal resistance fall time | 350 | ms |

*When an illumination of 50 lux is removed, the resistance rise time is the time taken for the cell resistance to rise to 24kΩ.

**When an illumination of 50 lux is applied to a cell that was in the dark the resistance fall time is the time taken for the resistance to fall from its dark value to 5.3kΩ.

## ABSOLUTE MAXIMUM RATINGS

| | | |
|---|---|---|
| $V_{cell}$ max. (d.c. or a.c. pk) | 110 | V |
| $p_{cell}$ max. with uniform illumination (see curve on page C4) | | |
| at $T_{amb} = 25^{\circ}C$ | 200 | mW |
| $T_{amb}$ | | |
| Maximum | +60 | °C |
| Minimum | -10 | °C |

## OPERATING NOTES

1. This data is based on the device being uniformly illuminated.

2. For sources of illumination other than a lamp of colour temperature 2700°K, the cell resistance should be multiplied by the following approximate factors.

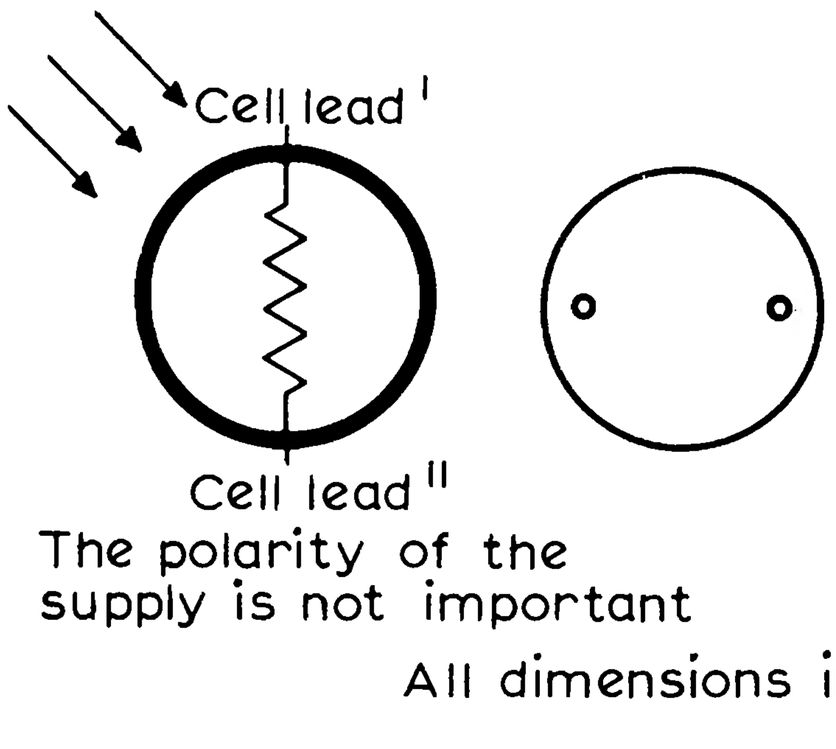
| Source of illumination | Factor |
|---|---|
| Incandescent radiation at colour temperature of: | |
| 1500°K | 1/2 |
| 2000°K | 2/3 |
| Sunlight | 4/3 |
| White fluorescent | 2 |

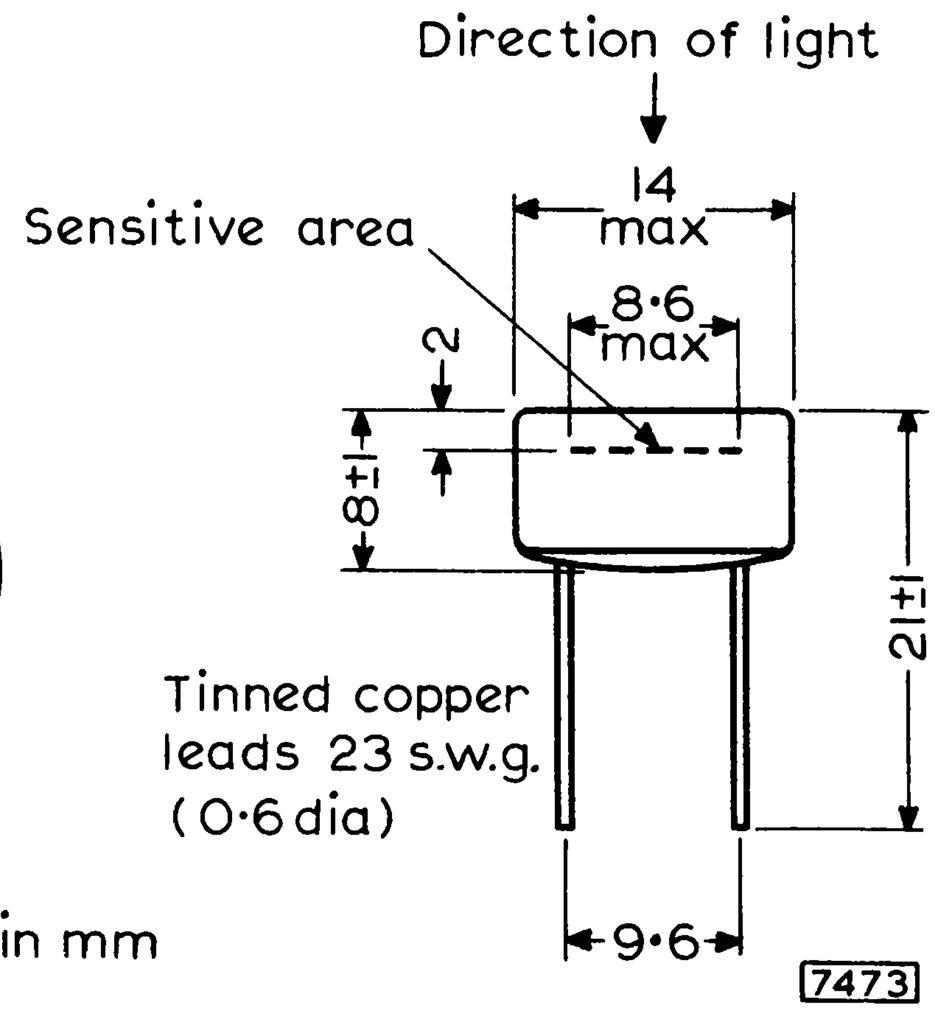
3. Care should be taken not to bend the leads nearer than 1.5mm to the seal.

4. When the cell illumination is changed the cell resistance changes to a transient value and then over a period of approximately 10 minutes assumes an equilibrium value. The transient usually overshoots the final equilibrium resistance.

5. The cell should not be subjected to high relative humidity at ambient temperatures above 50°C.

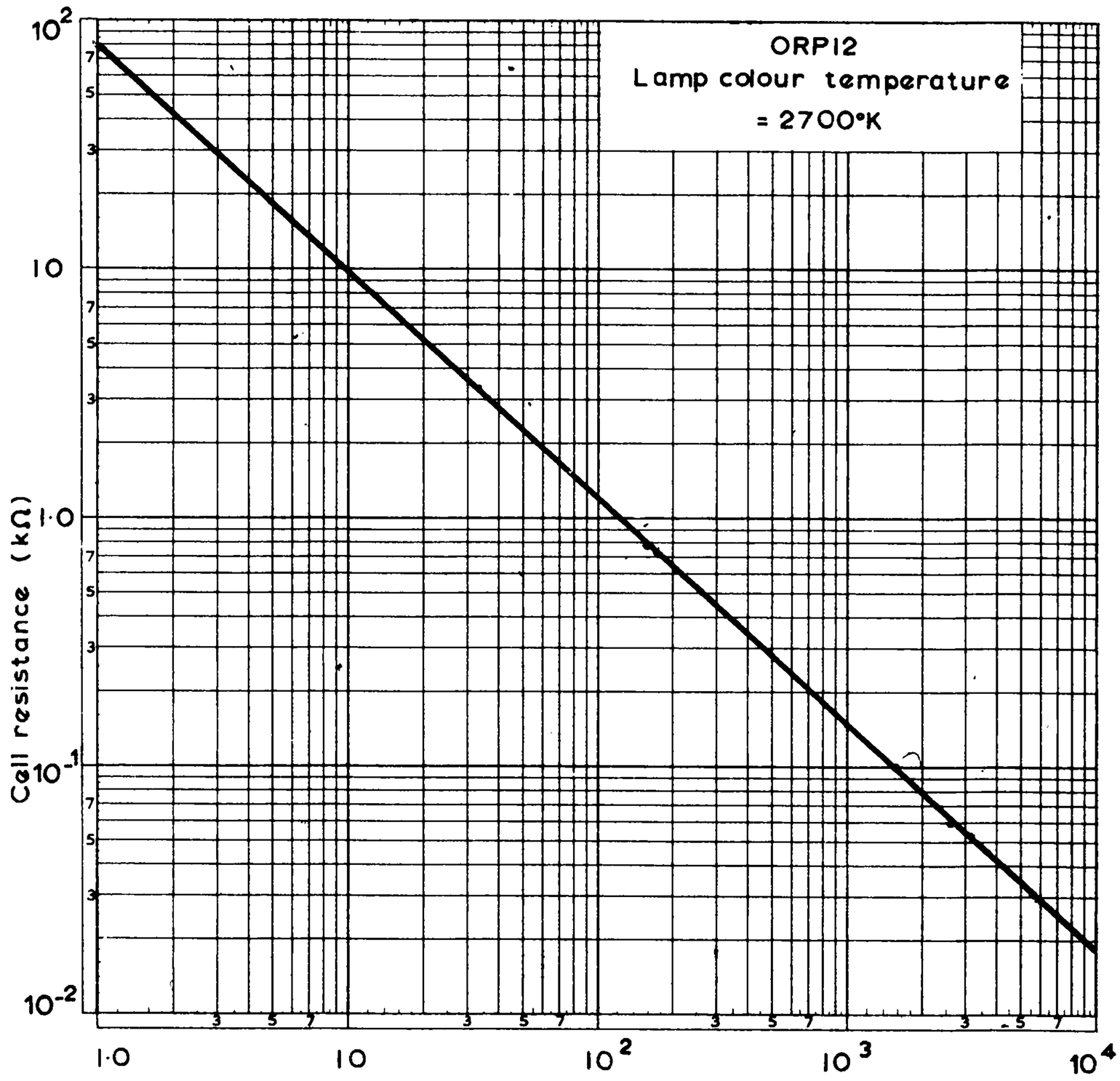
6. The cell may be soldered directly into the circuit but heat conducted to the cell body should be kept to a minimum by the use of a thermal shunt.



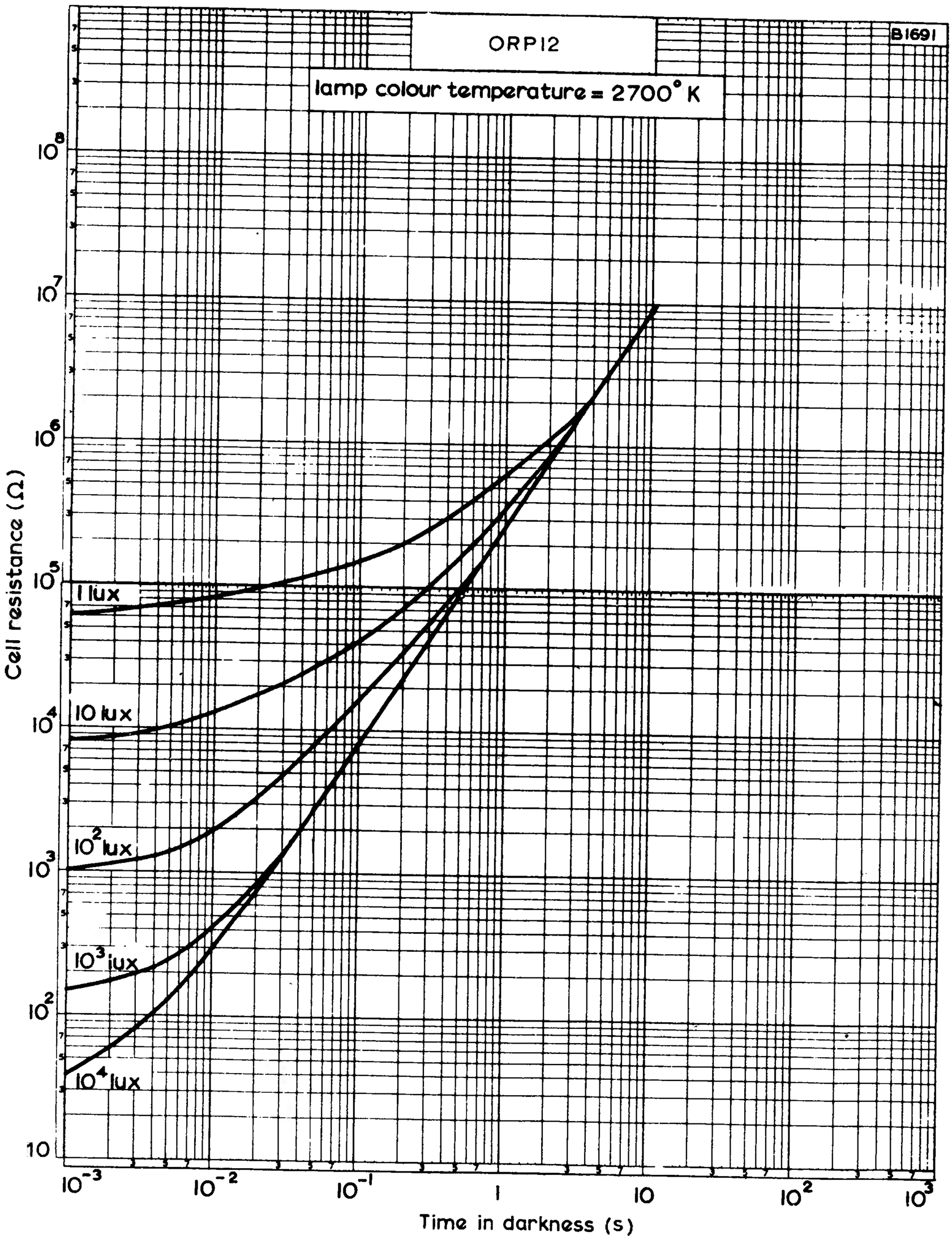




All dimensions in mm

# PHOTOCONDUCTIVE CELL ORP12

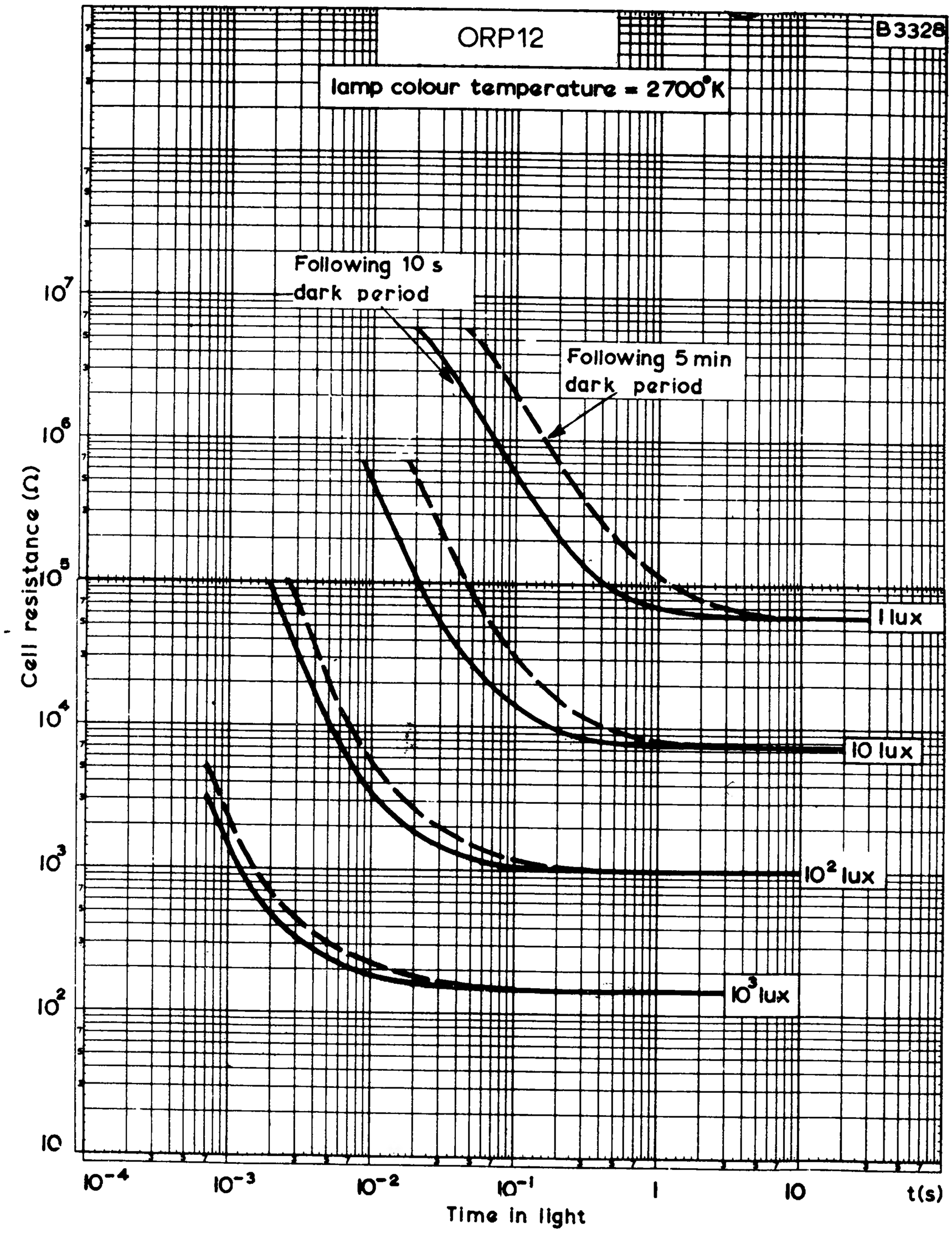



CELL RESISTANCE PLOTTED AGAINST ILLUMINATION

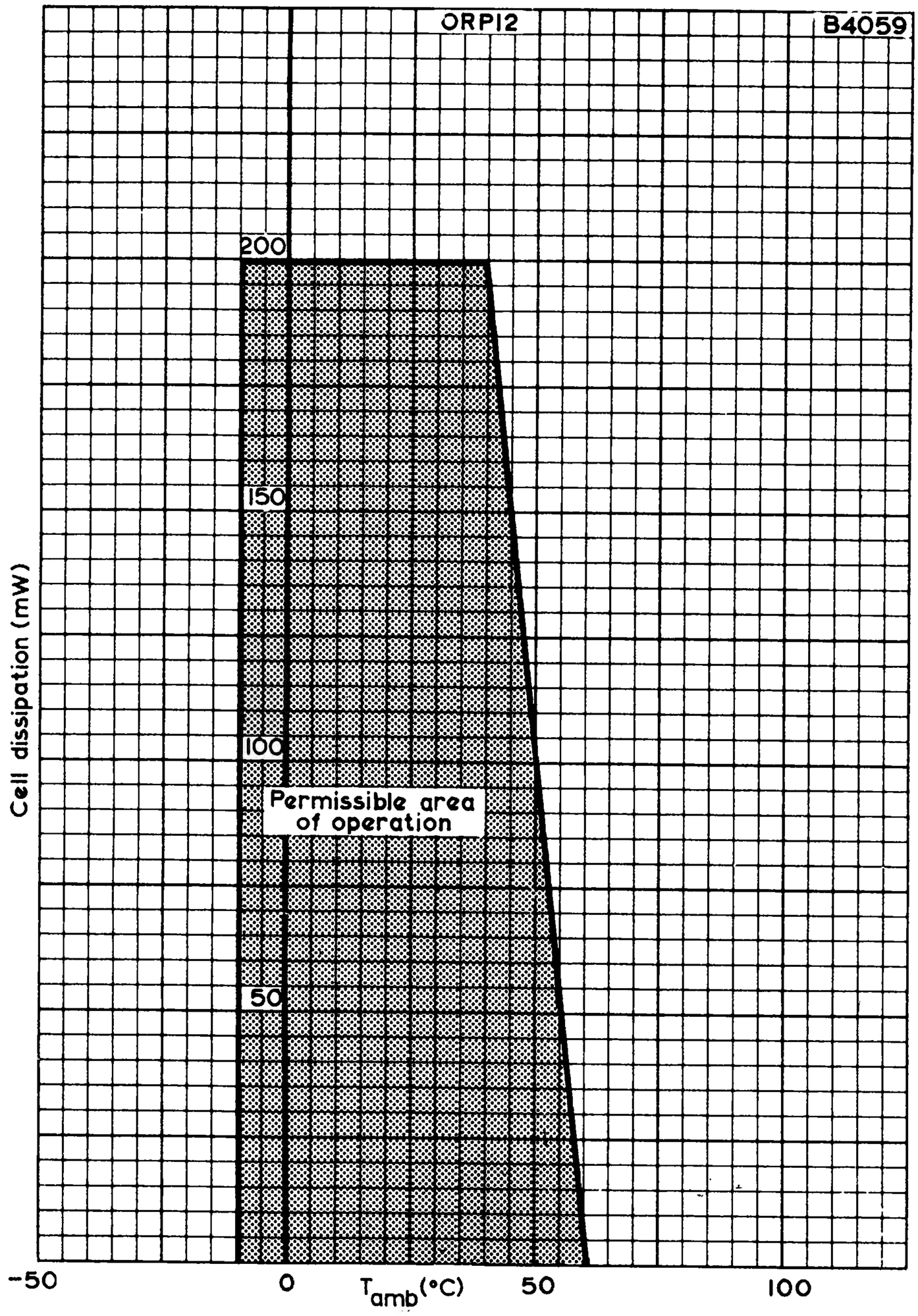



NOMINAL RESISTANCE RISE-TIME CURVES WITH ILLUMINATION AS PARAMETER

# PHOTOCONDUCTIVE CELL ORP12

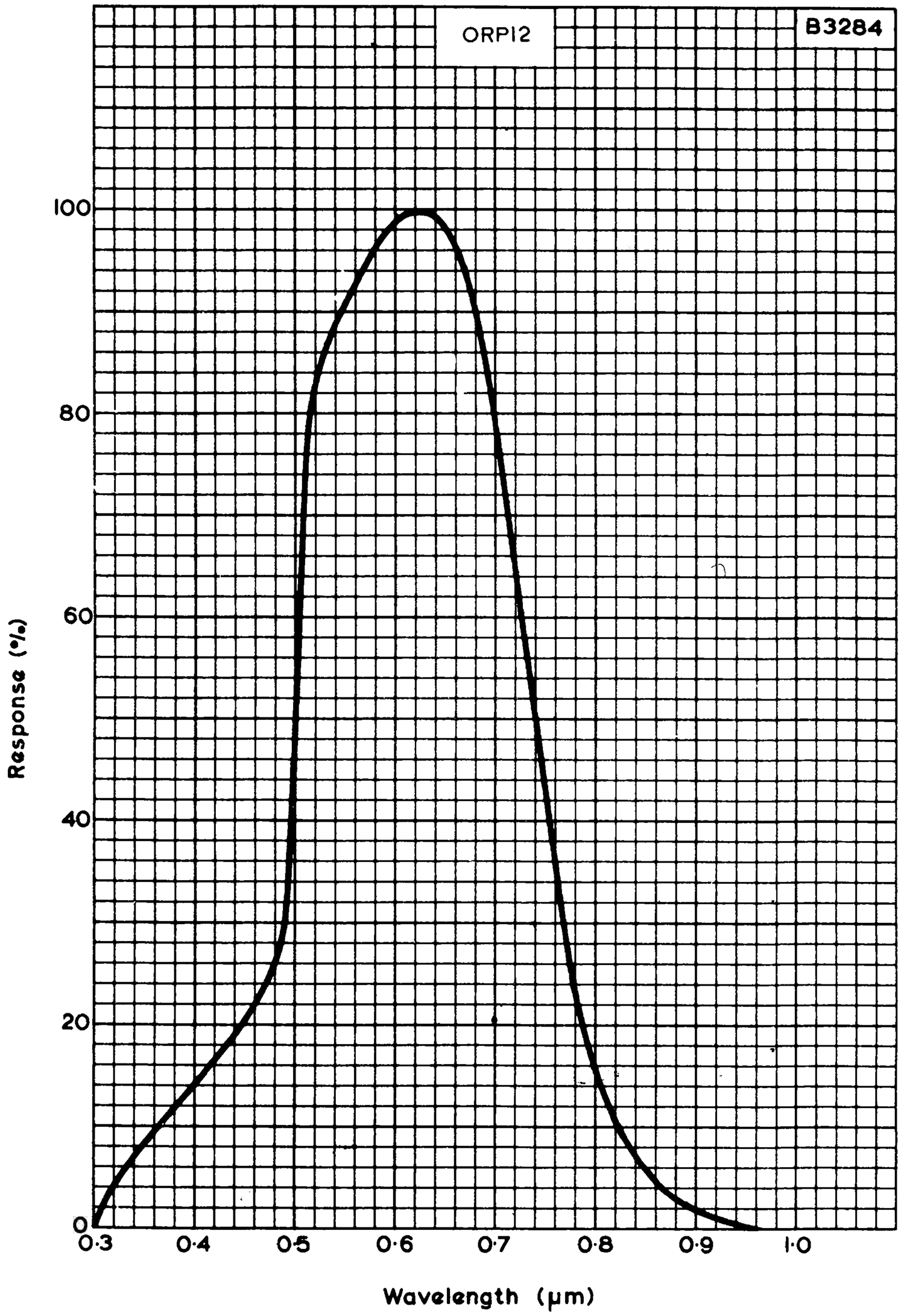



NOMINAL RESISTANCE FALL-TIME CURVES FROM DARKNESS
WITH ILLUMINATION AS PARAMETER




MAXIMUM CELL DISSIPATION PLOTTED AGAINST AMBIENT TEMPERATURE

# PHOTOCONDUCTIVE CELL ORP12




SPECTRAL RESPONSE CURVE